

WHAT IS CLAIMED IS:

1. A communicating apparatus connected to both of an IPv4 network and an IPv6 network, comprising:

an IP transmitting/receiving unit for executing transmittance/reception of an IPv4 packet with respect to said IPv4 network and executing transmittance/reception of an IPv6 packet with respect to said IPv6 network,

an IP multicast membership group managing unit for holding IPv4 multicast addresses of a multicast group on said IPv4 network, said communicating apparatus being a member of said multicast group,

a for-conversion IP address holding unit for holding IPv6 multicast addresses used on said IPv6 network,

an IP address conversion information holding unit for holding at least one of said IPv4 multicast addresses and at least one of said IPv6 multicast addresses in correspondence with each other, said IPv4 multicast addresses being held by said IP multicast membership group managing unit, said IPv6 multicast addresses being acquired from said for-conversion IP address holding unit, and

an IP header converting unit for converting said IPv4 multicast address of said IPv4 packet into said IPv6 multicast address, said IPv4 packet being received by said IP transmitting/receiving unit, said

00000000-00000000

IPv6 multicast address being held in correspondence with said IPv4 multicast address by said IP address conversion information holding unit.

2. The communicating apparatus as claimed in Claim 1, wherein said for-conversion IP address holding unit holds IPv6 unicast addresses used on said IPv6 network, said IP address conversion information holding unit holding said IPv6 unicast address and an IPv4 unicast address of said received IPv4 packet in correspondence with each other, said IPv6 unicast address being acquired from said for-conversion IP address holding unit, said IP header converting unit converting said IPv4 unicast address of said received IPv4 packet into said IPv6 unicast address held in correspondence with said IPv4 unicast address.

3. The communicating apparatus as claimed in Claim 1, wherein, when said communicating apparatus becomes a member of a new multicast group on said IPv4 network, said IP multicast membership group managing unit instructs said IP transmitting/ receiving unit to transmit, to said IPv4 network, a message for demanding said membership into said new multicast group.

4. The communicating apparatus as claimed in Claim 1, wherein said IPv6 multicast address registered in said IP address conversion information holding unit is an address formed by adding a higher-order bit string of a fixed pattern to said IPv4 multicast packet registered in correspondence with said registered IPv6

106250 0855960

multicast address.

5. A communicating apparatus connected to both of at least a 1st IP network and a 2nd IP network, comprising:

an IP transmitting/receiving unit for executing transmittance/reception of a 1st IP packet with respect to said 1st IP network and executing transmittance/reception of a 2nd IP packet with respect to said 2nd IP network,

an IP multicast membership group managing unit for holding 1st IP multicast addresses of a multicast group on said 1st IP network, said communicating apparatus being a member of said multicast group,

a for-conversion IP address holding unit for holding 2nd IP multicast addresses used on said 2nd IP network,

an IP address conversion information holding unit for holding at least one of said 1st IP multicast addresses and at least one of said 2nd IP multicast addresses in correspondence with each other, said 1st IP multicast addresses being held by said IP multicast membership group managing unit, said 2nd IP multicast addresses being acquired from said for-conversion IP address holding unit, and

an IP header converting unit for converting said 1st IP multicast address of said 1st IP packet into said 2nd IP multicast address, said 1st IP packet

106220.00000000

6. A packet converting method of converting a multicast packet transmitted on an IPv4 network into a multicast packet transmitted on an IPv6 network, comprising the steps of:

holding IPv4 multicast addresses of a multicast group on said IPv4 network, a membership into said multicast group having been implemented,

transmitting a message to said IPv4 network  
so as to receive said multicast packet, said message  
being transmitted for implementing a membership into a  
multicast group using an IPv4 multicast address of said  
IPv4 multicast packet,

converting said IPv4 multicast address of  
said received IPv4 multicast packet into said IPv6  
multicast address held in correspondence with said IPv4  
multicast address, and

transmitting said converted multicast packet

to said IPv6 network.

7. The packet converting method as claimed in Claim 6, further comprising the steps of:

preparing IPv6 unicast addresses used on said IPv6 network,

holding an IPv4 unicast address of said multicast packet and at least one of said prepared IPv6 unicast addresses in correspondence with each other, said multicast packet being subjected to said packet conversion, and

converting said IPv4 unicast address into said IPv6 unicast address held in correspondence with said IPv4 unicast address.

8. The packet converting method as claimed in Claim 6, wherein, at said step of preparing said 2nd IP multicast addresses, said 2nd IP multicast addresses are formed by adding a fixed bit string to a higher-order bit string of said 1st IP multicast addresses.

9. A communicating apparatus connected to an IPv4 network and an IPv6 network and comprising at least a storage device, an arithmetic-logic device, and an IP-I/O device, said communicating apparatus, by causing said arithmetic-logic device to execute a program stored in said storage device, executing the following processings of:

storing IPv6 multicast addresses into a 1st storage region of said storage device, said IPv6 multicast addresses being used on said IPv6 network,

106220.0852860

holding at least one of said IPv4 multicast addresses of said multicast group and at least one of said IPv6 multicast addresses in correspondence with each other into a 2nd storage region of said storage device, said membership into said multicast group having been implemented, said IPv6 multicast addresses being stored in said 1st storage region,

receiving an IPv4 multicast packet of said  
multicast group by said IP-I/O device, said membership  
into said multicast group having been implemented, and

converting an IPv4 multicast address into an IPv6 multicast address, said IPv4 multicast address being a destination address contained in said received IPv4 multicast packet, said IPv6 multicast address being stored in said 2nd storage region in correspondence with said IPv4 multicast address which is said destination address.